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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/594,621	06/15/2000	James M. Souza	00PAT16	9666

7590
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12/19/2002

EXAMINER

BOYD, JENNIFER A

ART UNIT	PAPER NUMBER
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1771

DATE MAILED: 12/19/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/594,621

Examiner

Jennifer A Boyd

FILE

Applicant(s)

SOUZA ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 June 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 – 6 and 21 - 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Sturgeon (US 3,778,334).

As required by claim 1, Sturgeon teaches a composite material comprising high modulus organic fiber layers alternating with inorganic fiber layers in a resin matrix (Title). The composite material is useful in various structural forms such as arches and plates (column 15, lines 1 – 5). The high modulus organic fiber layers comprise aromatic polyamides (column 3, lines 25 – 35). The organic fiber layers can be Applicant's "first elongate generally planar ply" and "second elongate generally planar ply". The inorganic fiber layers comprise metal fibers such as steel. (column 4, lines 28 – 34). Steel is known to be ferrous thus magnetically detectable. The inorganic fiber layers can be the Applicant's "elongate generally planar detectable ply". The resin matrix can comprise a wide variety of conventional thermosetting and thermoplastic polymer matrices and conventionally employed curing agents may be used (column 4, lines 50 – 75). The layers can be bound together by means of vacuum bag, pressure bag and autoclave molding processes (column 5, lines 40 – 55). Sturgeon does not specify a specific amount of layers but only that the layers are alternating between high modulus organic

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fiber layers with inorganic fiber layers which is the desired organization of the layers of the composite material of the Applicant.

As required by claim 2, Sturgeon teaches that the magnetically detectable ply of steel wires (column 4, lines 28 – 34) can be made of a woven fabric or “mesh” (column 2, lines 1 – 20).

As required by claim 3, Sturgeon teaches that the magnetically detectable ply of steel wires can be made of a cloth or “sheet” (column 2, lines 1 – 20).

As required by claim 4, Sturgeon teaches that the magnetically detectable ply of steel wires can be made of a scrim cloth which is a loosely woven article which has many voids or “perforations” (column 2, lines 1 – 20).

As required by claim 5, Sturgeon teaches that the magnetically detectable ply of steel wires can be in the form of side-by-side unidirectionally-oriented layers of fabric or tape or “thin narrow bands” (column 2, lines 1 – 20).

As required by claim 6, Sturgeon teaches that the magnetically detectable ply of steel wires can be in the form of single crystal particles or fibrous elements such as whiskers (column 4, lines 36 – 44).

As to claims 21-25, the features of the patent are set forth above.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 7 - 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sturgeon (US 3,778,334) in view of Drosthholm et al. (US 4,081,302).

Sturgeon fails to teach that the composite structural reinforcement device comprises an interlock means comprising a multiplicity of serrations formed on said upper face and said lower face of said body in a generally perpendicular relation to said longitudinal axes of said plies for the purpose of forming a mechanical interlock between said faces during the application of the device to a structural member. Sturgeon fails to teach that the composite structural reinforcement device comprises an alignment means comprising a longitudinal groove extending into said body from one of the said faces thereof and extending along said body parallel to said longitudinal axis thereof, and a matching longitudinal projection extending outwardly from the other of said faces thereof and extending along said body parallel to said longitudinal axis thereof directly opposite said groove, so that said projection is received in said groove as the device is applied in overlying layers to a structural member.

Drosthholm et al. teaches the production of tubular elements such as pipes, especially such tubular elements as are formed of fiber reinforced thermosetting resin materials and which are provided with a lining particularly in the form of a thermoplastic resin lining. One embodiment suggests introducing a lining (i.e. a strip or sheet type of metal foil) to be applied to the mandrel by helically winding the metal foil strip with overlapping or abutting edges. The adjacent edges may be secured by complimentary deforming the lining to provide a mechanical interlock (column 10, lines 10 – 20).

Figures 17 and 18 provide two examples of mechanical interlocks. Figure 17 shows a dovetail groove, which has serrated edges as required by claims 7 and 8. In the complimentary deforming of the lining to provide a mechanical interlock in the instance of Figure 17, one part of the lining would have an edge with serrations and the adjacent edge would have an edge with serrations complimenting the opposing edge. Figure 18 shows simple straight-sided grooves, which would provide an alignment means as required by claims 9 and 10. In the complimentary deforming of the lining to provide a mechanical interlock in the instance of Figure 18, one part of the lining would have an edge with a projecting longitudinal groove and the adjacent edge would have a complimentary recessed longitudinal groove.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form a mechanical interlock comprising a multiplicity of serrations formed on upper and lower face in a generally perpendicular relation to longitudinal axes of the plies as suggested by Drosthholm et al. in the laminate of Sturgeon motivated by the desire to anchor a material having poor bondability creating minimal system stresses.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form an alignment means comprising a longitudinal groove extending into a face and a matching longitudinal projection extending outwardly from another face as suggested by Drosthholm et al. in the laminate of Sturgeon motivated by the desire to properly position the laminate while making it easily removable a surface.


As to claims 11 - 16 and 18 - 20, the features of the patents are set forth above.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A Boyd whose telephone number is 703-305-7082. The examiner can normally be reached on Monday thru Friday (8:30am - 6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 703-308-2414. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


Jennifer Boyd
December 11, 2002


TERREL MORRIS
SUPERVISORY PATENT EXAMINER
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